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Response
11/20/02
a/sjIN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of

Hayakawa et al.

Serial No.: 09/532,915

Filed: March 22, 2000

For: Semiconductor Device And Method
For Manufacturing The Same

Art Unit: 2826

Examiner: A. Sefer

Commissioner for Patents
Washington, D.C. 20231

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November 6, 2002

RESPONSE C

Sir:

Applicants have the following response to the Office Action of June 6, 2002, a two month extension of time being separately requested.

In the Office Action, the Examiner rejects Claims 1-3, 5, 6 and 10 under 35 USC §102(b) as being anticipated by Iyer et al. This rejection is respectfully traversed.

The present invention is directed to a semiconductor device. As recited in independent Claim 1, the semiconductor device comprises a silicon oxide nitride film formed over a substrate, and a semiconductor film formed over the silicon oxide nitride film. The silicon oxide nitride film ranges from 0.3 to 1.6 in a ratio of the concentration of nitrogen to the concentration of silicon. The other independent claims have similar limitations.

In the Office Action, the Examiner alleges that Iyer discloses a semiconductor film 120 formed the silicon oxide film 106.

Applicants respectfully disagree with this interpretation of the reference. As shown in Fig. 5E of Iyer, reference numeral 120 designates a patterned oxidation diffusion stack (see page 12, lns.18-19) that remains on the silicon wafer 100. It includes a pad oxide layer 102, an anti reflection coating layer 106, and a silicon nitride layer 110 on layer 106. The ARC layer is preferably silicon-rich-oxynitride SiO_xN_y where x is in the range of about 0.2 to about 1.9 and y is in the range of about .01 to about 1.0 (see page 8, lns. 29-31). There appears to be no disclosure or suggestion of a semiconductor layer on a silicon oxide nitride film.

This is very different that the device claimed in the present application wherein the semiconductor layer is formed over the silicon oxide nitride film. Hence, it is respectfully submitted that Iyer cannot anticipate, nor does it render obvious, the claimed invention. Accordingly, it is requested that this rejection be withdrawn.

The Examiner also has the following new rejections under 35 U.S.C. §103(a): Claims 4 and 11 as being unpatentable over Iyer et al.; Claims 7 and 8 as being unpatentable over Iyer et al.; Claim 9 as being unpatentable over Iyer et al.; Claims 18 and 19 as being unpatentable over Iyer et al. in view of Van der Groen et al.; Claims 20 and 21 as being unpatentable over Iyer et al. in view of Van der Groen et al. Each of these rejections is respectfully traversed.

As explained above, Iyer fails to disclose or suggest the claimed invention.

The Examiner cites Van der Groen as allegedly disclosing a semiconductor film comprising a channel forming region provided over an insulating underlying film 13; a gate insulating film provided channel forming region; and a gate electrode provided adjacent to the channel forming region and over the gate insulating film. There is no disclosure or suggestion, however, in Van der Groen of a silicon oxide nitride film ranging from 0.3 to 1.6 in a ratio of the concentration of nitrogen to the concentration of silicon, a required in the claims of the present application. Hence, this reference does not disclose or suggest the claimed invention.

Further, Applicants believe that no motivation has been provided to combine the references as required under the law. See Ecocolochem, Inc. v. Southern California Edison Company, 56 USPQ2d 1065, 1073 (Fed. Cir. 2000).

Accordingly, for at least the above-stated reasons, the claims of the present application are patentable over the cited references and should now be allowed.

If any fee is due for this submission, please charge our deposit account 50/1039.

Respectfully submitted,

Date: *November 6, 2002*



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